

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(Currently Amended)** A method of communicating over an optical network having a plurality of add/drop nodes interconnected by optical fiber, the method comprising:
 - producing a plurality of optical signals, including first and second optical signals;
 - pre-compensating the dispersion of the first and second signals by a similar magnitude and with the same sign;
 - transporting the first signal to a first drop location; and
 - transporting the second signal to a second drop location;wherein at least one of the first and second signals is transported via a dispersion managed optical fiber span, the span comprising a plurality of optical fibers fused together serially, the plurality of optical fibers including first, second, and third optical fiber sections, the first optical fiber section having a dispersion of negative or positive sign at a wavelength, the second optical fiber section having a dispersion of opposite sign at the wavelength, and the third optical fiber section having a dispersion of like sign at the wavelength.
2. **(Original)** The method of claim 1 wherein the first and second optical signals are produced at a common source location.
3. **(Original)** The method of claim 1 wherein the first and second optical signals are produced at different source locations.
4. **(Original)** The method of claim 1 further comprising, after carrying the first and second signals to the respective first and second drop locations, post-compensating the first and second signals by a similar magnitude and with the same sign.

5. **(Original)** The method of claim 1 wherein the plurality of optical signals are produced at a plurality of source locations.
6. **(Original)** The method of claim 5 wherein greater than 25% of all of the optical signals produced are dispersion pre-compensated by a similar magnitude and with the same sign.
7. **(Original)** The method of claim 5 wherein greater than 50% of all of the optical signals produced are dispersion pre-compensated by a similar magnitude and with the same sign.
8. **(Original)** The method of claim 1 wherein the plurality of optical signals are produced at a common source location
9. **(Original)** The method of claim 8 wherein greater than 50% of the optical signals produced at the common source location are dispersion pre-compensated by a similar magnitude and with the same sign.
10. **(Original)** The method of claim 1 wherein the first and second signals temporally overlap.
11. **(Currently Amended)** A method of communicating over an optical network having a plurality of add/drop nodes interconnected by optical fiber, the method comprising:
 - producing a first second optical signal at a first source location;
 - producing a second optical signal at a second source location;
 - carrying the first and second signals to a common drop location, wherein at least one of the first and second signals is carried via a dispersion managed optical fiber span, the span comprising a plurality of optical fibers fused together serially, the plurality of optical fibers including first, second, and third optical fiber sections, the first optical fiber section having a dispersion of negative or positive sign at a wavelength, the second

optical fiber section having a dispersion of opposite sign at the wavelength, and the third optical fiber section having a dispersion of like sign at the wavelength; and

post-compensating the first and second signals by a similar magnitude and with the same sign.

12. **(Original)** The method of claim 11 further comprising, before carrying the first and second signals to a common drop location, pre-compensating the dispersion of the first and second signals by a similar magnitude and with the same sign.

13. **(Original)** The method of claim 11 wherein greater than 50% of all of the optical signals dropped are dispersion post-compensated by a similar magnitude and with the same sign.

14. **(Original)** The method of claim 11 wherein substantially all of the optical signals dropped are dispersion post-compensated by a similar magnitude and with the same sign.

15. **(Original)** The method of claim 11 wherein greater than 25% of the optical signals produced at the common source location are dispersion post-compensated by a similar magnitude and with the same sign.

16. **(Original)** The method of claim 11 wherein greater than 50% of the optical signals produced at the common source location are dispersion post-compensated by a similar magnitude and with the same sign.

17. **(Currently Amended)** An optical communications system comprising:
an optical signal source capable of generating a plurality of signals at a plurality of wavelengths, including first and second signals;
a plurality of nodes including first, second and third nodes;
a plurality of optical fiber links including:
interconnecting links that optically interconnect the plurality of nodes,
wherein at least one of the interconnecting links comprises a dispersion managed

optical fiber span, the span comprising a plurality of optical fibers fused together serially, the plurality of optical fibers including first, second, and third optical fiber sections, the first optical fiber section having a dispersion of negative or positive sign at a wavelength, the second optical fiber section having a dispersion of opposite sign at the wavelength, and the third optical fiber section having a dispersion of like sign at the wavelength; and

external branch links, each external branch link optically connected to at least one of the nodes, including a first external branch link that optically connects the first node to the optical signal source; and

a signal dispersion pre-compensation means optically coupled to the first external branch link;

wherein the first and second signals are pre-compensated by a substantially similar magnitude and with the same sign prior to entering the first node;

wherein the first signal is added at the first node, then transported to and dropped at the second node; and

wherein the second signal is added at the first node, then transported to and dropped at the third node.

18. **(Canceled)**

19. **(Canceled)**

20. **(Original)** The method of claim 18 wherein the magnitude of the per span residual dispersion is greater than about 10 ps/nm.

21. **(Original)** The method of claim 18 wherein the magnitude of the per span residual dispersion is less than about 10 ps/nm.

22. **(Original)** The method of claim 17 wherein the first and second signals are pre-compensated to within 50 ps/nm of each other.

23. **(Original)** The method of claim 17 wherein at least one signal enters a first node, transits through a second node, and is dropped at a third node.

24. **(Original)** The method of claim 17 wherein greater than 50% of the signals generated by the optical signal source are each compensated with compensation having substantially similar magnitude and the same sign prior to entry into the first node.

25. **(Currently Amended)** The method of claim 17 further comprising at least one other external branch link optically coupled to one of the nodes, wherein the first and second signals are post-compensated, with substantially magnitude and with the same sign, within the at least one other external branch links.

26. **(Currently Amended)** An optical communications system comprising:

- a first optical signal source capable of generating a plurality of signals at a plurality of wavelengths including a first signal;

- a second optical signal source capable of generating a plurality of signals at a plurality of wavelengths including a second signal;

- a plurality of nodes including first, second and third nodes; and

- a plurality of optical fiber links including:

- interconnecting links that optically interconnect the plurality of nodes, wherein at least one of the interconnecting links comprises a dispersion managed optical fiber span, the span comprising a plurality of optical fibers fused together serially, the plurality of optical fibers including first, second, and third optical fiber sections, the first optical fiber section having a dispersion of negative or positive sign at a wavelength, the second optical fiber section having a dispersion of opposite sign at the wavelength, and the third optical fiber section having a dispersion of like sign at the wavelength; and

- external branch links, each external branch link optically connected to at least one of the nodes, including:

a first external branch link that optically connects the first node to the first optical signal source;

a second external branch link that optically connects the second node to the second optical signal source; and

a third external branch link optically connected to the third node;

wherein the first signal is added at the first node, then transported to and dropped at the third node;

wherein the second signal is added at the second node, then transported to and dropped at the third node; and

wherein the third external branch link includes signal dispersion post-compensation means for post-compensating the first and second signals with dispersion post-compensation of substantially similar magnitude and of the same sign.

27. **(Original)** The method of claim 26 wherein greater than 50% of the dropped signals are each post-compensated by a substantially similar magnitude and with the same sign.